

“Don’t Let Your Flap Get HITT”: A Case Report and Systematic Review of Heparin Induced Thrombocytopenia and Thrombosis

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BACKGROUND:

Heparin induced thrombocytopenia and thrombosis (HITT) may compromise the success of microsurgical procedures. In 2009, the Plastic Surgery team at the Montreal General Hospital treated a patient suffering from a chronic 8x9cm wound of the right medial malleolus. The wound was treated with a left anterolateral thigh perforator free flap complicated by multiple thrombotic events. Despite multiple salvage attempts including thrombolysis, popliteal AV loop, and a second free flap procedure, all microvascular attempts at correction failed. HITT was diagnosed six days postoperatively, and due to the significant impact of HITT on this flap, we reviewed literature and found few reports describing HITT in microsurgery. We present a comprehensive review of HITT in microsurgery and how HITT might be identified earlier to promote improved flap viability.

METHODS:

We performed a literature review (PUBMED, MEDLINE, Cochrane Reviews) to determine how HITT affects flap viability.

RESULTS:

HITT is estimated to occur in up to 5% of patients treated with heparin. HITT could also be under-diagnosed, highlighting the importance of recognition of HITT in plastic surgery. Suspicion of HITT should prompt immediate cessation of heparin and implementation of non-heparin anti-coagulants. Of the 7 diagnosed cases of HITT in free-flaps we reviewed, only one reported flap salvage, likely due to immediate substitution of heparin with agatroban therapy.

CONCLUSIONS:

HITT is a significant threat to free-flap survival. In patients with thrombotic events, previous heparin exposure, and post-operative decline of platelets, HITT should be considered as a cause of failing flaps. We recommend using the “4T” algorithm to assess pre-test probability of HITT, and to measure CBC counts daily after flap placement to follow platelet levels. On suspicion of HITT, heparin treatment should be discontinued and replaced with an alternative anti-coagulant such as agatroban or lepirudin to enhance flap viability and reduce patient mortality.